

REMARKS

The Office Action of August 31, 2005 has been received and its contents carefully considered.

Section 1 of the Office Action rejects claim 6 for an informality. The present Amendment corrects this informality, so the objection should be withdrawn.

Section 4 of the Office Action rejects claim 1 for indefiniteness due to the limitation “banknote” in lines 3 and 6. The present Amendment revises claim 1 in response to this rejection, and also makes other changes of a formal nature in claim 1 to improve the form of the claim under U.S. claim-drafting practice.

In addition, the present Amendment makes revisions in claim 1 that emphasize a feature that was already present in claim 1 as-filed. In claim 1 as-filed, a “banknote passage” was located between a “detection side” of a “transmitter holder base” and a “detection side” of a “receiver holder base.” Claim 1 as-filed also recited “an optical transmitter module mounted in the detection side of said transmitter holder base” and “an optical receiver module mounted in the detection side of said receiver holder base.” As a result, the “optical transmitter module” is located on one side of the “banknote passage” and the “optical receiver module” is located on the other side of the “banknote passage.” The present Amendmetn revises claim 1 to emphasize these geometrical relationships by reciting that ultraviolet light is emitted onto “a first side” of a banknote and that at least one phototransistor receives light from “a second side” of the banknote.

Section 5 of the Office Action rejects claim 4 on the ground that “for ... enabling said control unit” is unclear. The present Amendmetn extracts the offending language

from claim 4, and adds it back in a new dependent claim 7. Accordingly, the rejection should be withdrawn.

Sections 6 and 7 of the Office Action reject claim 3 for indefiniteness, on the ground that the specification does not clearly redefine the term “transmission module.” Although it is respectfully submitted that an ordinarily skilled person who had read the present application would encounter no difficulty in understanding claim 3, the present Amendment revises the specification to specifically equate a “transmission module” to a “transporting mechanism.” Accordingly, the rejection should be withdrawn.

Section 9 of the Office Action rejects independent claim 1 (along with dependent claims 2-4) for anticipation by U.S. patent 6,101,266 to Laskowski et al. This reference will hereafter be called simply “Laskowski.” For the reasons discussed below, however, it is respectfully submitted that the invention defined by claim 1 is neither anticipated by Lawkowski nor rendered obvious by the reference.

Claim 1 recites an “an optical transmitter module” that comprises “at least one ultraviolet light emitting diode adapted to emit ultraviolet light onto a first side of the banknote ...”. The Laskowski reference specifies red, green, blue, and infrared light, but there is no mention of ultraviolet light. The Office Action notes the following sentence appearing at lines 45 and 46 in column 6 of the reference: “In other embodiments of the invention other types and wavelengths of emitters may be used.” This sentence, however, is presented at the end of a paragraph explaining that the embodiment which Laskowski is describing uses red, green, blue, and IR LEDs that produce generally monochromatic light. In the context of the paragraph in which it appears, then, the sentence noted in the Office Action could be interpreted as meaning that light sources

other than LEDs could be used, or that the light need not be monochromatic, or that other colors (orange, purple, lime-green, or so forth) might be used. The sentence cited in the Office Action cannot be interpreted as a suggestion to use ultraviolet illumination. This alone is enough to avoid anticipation.

Section 9 of the Office Action also comments, "It is also considered inherent that Laskowski's apparatus' LED emitters (32) would work substantially the same as Applicant's apparatus regardless of the radiation emitted." It is respectfully submitted, however, that an ordinarily skilled person would have had no reason to make this assumption. Laskowski's arrangement detects light of specific wavelengths that is reflected from or transmitted through a banknote. If ultraviolet light is shined on a banknote, though, any fluorescent material that is present would produce light having a wavelength characteristic of the fluorescent material. That is, Laskowski detects light having the same wavelength as the irradiating light, while additional wavelengths may be generated if the irradiating light is ultraviolet. Fluorescence would undoubtedly effect the banknote characteristics that are detected.

Moreover, an ordinarily skilled person would have had no reason to think that ultraviolet light could penetrate through a banknote. Visible light and IR can penetrate, but ultraviolet light has a shorter wavelength. It is well known that scattering and absorption of light by a medium are a function of wavelength. Since ultraviolet light has a wavelength shorter than the wavelengths employed by Laskowski, it seems likely that an ordinarily skilled person would assume that paper would effectively block transmission of ultraviolet light. Laskowski's arrangement, however, relies not only on

reflection of light emitted by his LEDs, but also on transmission of this light through a banknote.

The Office Action relies on lines 17-20 in column 6 of Laskowski to support the proposition that ultraviolet light is routinely used to detect identification strips on bills. While the cited passage mentions sensors for sensing identification strips, it says nothing about ultraviolet light.

The Office Action also comments that “... ultraviolet light is also used to determine fluorescence of the bills, as US banknotes are designed not to fluoresce while counterfeit bills do.” The undersigned attorney has no knowledge about this. If the Examiner intends to take official notice of these matters, it is respectfully requested that prior art or technical literature to substantiate these assertions be supplied.

As was previously noted, claim 1 has been amended to provide that ultraviolet light is emitted onto a first side of a banknote and that at least one phototransistor receives light from a second side of the banknote. Laskowski's Figure 3 (the same figure that is reproduced on the cover page of the patent) shows a photocell that receives light from the second side of a banknote. However, the light that Laskowski's photocell receives is red, green, or blue light, or infrared. Even assuming for sake for argument that an ordinarily skilled person who sought to improve Laskowski's arrangement considered shining ultraviolet light on one side of the banknote, he would have had no incentive for detecting ultraviolet light transmitted through the banknote to the other side. The reason is that an ordinarily skilled person would probably think that paper is fairly opaque to ultraviolet light because of its short wavelength, as discussed above. It would take another mental step for an ordinarily skilled person to realize that visible

wavelengths might also be present for detection, depending upon the banknote fluorescent material. There is no reason to think, though, that a person who is only ordinarily skilled would make this second mental step. Accordingly, it is respectfully submitted that the invention defined by claim 1 is not anticipated by Laskowski and is not obvious in view of the reference, either.


Section 11 of the Office Action rejects claim 1 (along with dependent claims 2-4) for anticipation by U.S. patent 6,731,785 to Mannie et al (which will hereafter be called simply "Mannie"). This rejection, too, is respectfully traversed.

Figure 5a (for example) of the reference shows a UV sensor 340 and a UV light tube 342. However, they appear to be both located on the same side of a banknote, as in Figure 7 of the reference. Claim 1, in contrast, provides that ultraviolet light is emitted onto a first side of the banknote, and at least one phototransistor receives light from a second side of the banknote. The reference would not have provided an incentive for an ordinarily skilled person to emit ultraviolet light onto one side of a banknote and detect light from the other side.

Since the remaining claims depend from the independent claims discussed above and recite additional limitations to further define the invention, they are patentable along with their independent claims and need not be further discussed.

For the foregoing reasons, it is respectfully submitted that this application is now in condition for allowance. Reconsideration of the application is therefore respectfully requested.

Respectfully submitted,

A handwritten signature in cursive script that reads "Allen Wood". The signature is written in dark ink and is positioned above a horizontal line.

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